

4. The 2003 *Record of Decision: OUs 3, 4, and 5, Lower Fox River and Green Bay, Wisconsin* (“2003 ROD”) analyzed six different remedial alternatives. According to the 2003 ROD itself:

The WDNR and EPA selected six remedial alternatives for detailed analysis for the River and Bay: No Action, Monitored Natural Recovery and Institutional Controls, Dredge and Off-Site Disposal, Dredge to a Confined Disposal Facility (CDF), Dredge and Vitrification, and *In-situ* Capping. For the Bay, a seventh remedial alternative, Dredge to a Confined Aquatic Disposal (CAD) Facility, was also evaluated. These alternatives cover the range of viable approaches to remedial action and include a no action alternative, as required by the NCP.

Dkt. 404-2 at 95 [2003 ROD at WDNR124002222].

5. The evaluation of the remedial alternatives covers over 70 pages. The costs of each of the six remedial alternatives were analyzed in detail in this analysis. Dkt. 404-2 at 100-172 [2003 ROD at WDNR124002227-2299].

6. For example, costs for each of the six remedial alternatives were compared for costs for OU 3 alternatives, and were summarized in Table 11-8 in the 2003 ROD:

Table 11-8 Comparison of Costs for OU 3 Alternatives at the 1 ppm RAL

	Estimated Volume Removed or Treated (cubic yards)	Estimated PCB Mass Remediated (pounds)	Capital Cost (\$ millions)	O&M Cost (\$ millions)	Present Worth Total Cost (\$ millions)
A – No Action	0	0	0	4.5	4.5
B – Monitored Natural Recovery	0	0	0	9.9	9.9
C1 – Dredging/Passive Dewatering/Off-Site Disposal	586,788	2,444	90.6	4.5	95.1
C2A – Dredging/Combined Passive Dewatering/Disposal Facility	586,788	2,444	39.4	4.5	43.9
C2B – Dredging/Passive Dewatering/Monofill	586,788	2,444	21.2	4.5	25.7
C2B – DD Incremental Cost	9,000	31	0.8	0.0	0.8
C3 – Dredging/Mechanical Dewatering/Off-Site Disposal	586,788	2,444	64.6	4.5	69.1
D – Dredge to a Confined Disposal Facility	586,788	2,444	48.0	4.5	52.5
E – Dredge and Vitrification	586,788	2,444	81.7	4.5	86.2
F – Dredging and Capping to Maximum Extent Practicable	170,418	2,444	58.4	4.5	62.9

Note:

Data are Table 7-7 of the FS and *White Paper No. 23 – Evaluation of Cost and Implementability of Alternative C2B for Operable Unit 3 and Operable Unit 4*. The white paper impacts only Alternative C2B and these costs were developed assuming capital costs were prorated based on the volume of sediment in OU 3 compared to the total for OU 3 and OU 4 combined (~9 percent) and that 50 percent of the O&M costs are applicable to OU 3.

Dkt. 404-2 at 116 [2003 ROD at WDNR124002243].

7. Similarly, all six of the remedial alternatives were compared for costs for OU 4 and were summarized in Table 11-16:

Table 11-16 Comparison of Present Worth Costs for OU 4 Alternatives at the 1 ppm RAL					
	Estimated Volume Removed or Treated (cubic yards)	Estimated PCB Mass Remediated (pounds)	Capital Cost (\$ millions)	O&M Cost (\$ millions)	Present Worth Total Cost (\$ millions)
A – No Action	0	0	0	4.5	4.5
B – Monitored Natural Recovery	0	0	0	9.9	9.9
C1 – Dredging/Passive Dewatering/Off-Site Disposal	5,879,529	58,150	651.9	4.5	656.4
C2A – Dredging/Combined Passive Dewatering/ Disposal Facility	5,879,529	58,150	164.8	4.5	169.3
C2B – Dredging/Passive Dewatering/Monofill	5,879,529	58,150	253.0	4.5	257.5
C3 – Dredging/Mechanical Dewatering/Off-Site Disposal	5,879,529	58,150	504.8	4.5	509.3
D – Dredge to a Confined Disposal Facility	5,879,529	58,150	496.4	4.5	500.9
E – Dredge and Vitrification	5,879,529	58,150	346.4	4.5	350.9
F – Dredging and Capping to Maximum Extent Practicable	4,046,276	58,150	348.4	4.5	352.9

Note:
Data are from Table 7-8 of the FS and *White Paper No. 23 – Evaluation of Cost and Implementability of Alternative C2B for Operable Unit 3 and Operable Unit 4*. The white paper impacts only Alternative C2B and these costs were developed assuming total costs were prorated based on the volume of sediment in OU 4 compared to the total for OU 3 and OU 4 combined (~91 percent) and that 50 percent of the O&M costs are applicable to OU 4. Costs listed here exclude costs associated with Bayport closure.

Dkt. 404-2 at 132 [2003 ROD at WDNR124002259].

8. The *Record of Decision Amendment: OU 2 (Deposit DD), OU 3, OU 4, and OU 5 (River Mouth): Lower Fox River and Green Bay Superfund Site* (June 2007) (“2007 ROD Amendment”) compares only the amended remedy to the 2003 remedy. Dkt. 404-3 at 21-28 [2007 ROD Amendment at EPAAR180124-131]. As to costs, Table 4 in the 2007 ROD

Amendment makes it very clear that the six remedial alternatives in the 2003 ROD were never revisited:

TABLE 4. Estimated Costs of the 2003 ROD Remedy and Amended Remedy

Item	2003 ROD ^a	Amended Remedy ^a
Mobilization/Demobilization - Site Preparation	\$ 64,104,000	\$ 44,496,000
Debris Removal/Dredging	\$ 132,570,000	\$ 37,520,000
Dewatering ^b	\$ 126,308,000	\$ 105,177,000
Disposal ^c	\$ 125,657,000	\$ 91,355,000
Capping/Sand Cover	\$ 4,260,000	\$ 32,340,000
Residuals Cover ^d	\$ 17,875,000	\$ 10,795,000
Beneficial Reuse ^e	\$ 25,460,000	\$ 6,150,000
Construction Monitoring ^f	\$ 50,160,000	\$ 37,160,000
Design and Support ^g	\$ 24,890,000	\$ 19,670,000
<i>Capital Costs ^h</i>	<i>\$ 571,284,000</i>	<i>\$ 384,663,000</i>
Present Worth of Long-Term Monitoring and Maintenance ⁱ	\$ 8,020,000	\$ 5,640,000
<i>Total Project Cost ^j</i>	<i>\$ 579,304,000</i>	<i>\$ 390,303,000</i>

Notes:

- a. All costs in 2005 dollars, except as noted.
- b. Includes construction of the NR 213 settling basin under the 2003 ROD. Does not include the cost of amendments that may be needed to achieve physical strength characteristics required for landfill operations.
- c. Includes construction of the NR 500 disposal facility under the 2003 ROD.
- d. Area requiring residuals cover will be determined based on post-construction sampling, but is estimated here based on areas expected to have post-dredge surface concentrations exceeding 1.0 ppm, assuming a mid-range estimate of 5 percent of the dredged PCB mass retained in the dredge prism area due to generated dredge residuals. Residuals cover is similar to a sand cover over areas where no dredging would be done (i.e., less than 6 inches of contamination and PCB concentrations between 1.0 – 2.0 ppm), but would be done in areas that had been dredged, having residual contamination still remaining.

Dkt. 404-3 at 27 [2007 ROD Amendment at EPAAR180130].

9. Similarly, the *Explanation of Significant Differences: OU 2, OU 3, OU 4, and OU 5 (River Mouth) Lower Fox River and Green Bay Site* (Feb. 2010) (“2010 ESD”) never claims that the United States Environmental Protection Agency (“EPA”) performed a new cost effectiveness analysis. The 2010 ESD merely compared the cost of the 2010 changes to the remedy to the costs in the 2003 ROD and the 2007 ROD Amendment. Dkt. 147-1 at 12-15 [2010 ESD at EPAAR185222-25]; see also Dkt. 147-2 at 2-3 and 6 [*Critical Analysis*

Memorandum: OU 2, (Deposit DD), OU 3, OU 4, and OU 5 (River Mouth), Lower Fox River and Green Bay Superfund Site (Feb. 2010) (“2010 CAM”) at EPAAR185228-29 and EPAAR185232]. The 2010 CAM makes this very clear where it plainly states that the Agencies “have re-evaluated the costs of various remedial alternatives based on information received since issuance of earlier decision documents.”

2. Cost		
The Response Agencies have re-evaluated the costs of various remedial alternatives based on information received since issuance of earlier decision documents for the Site. The following table summarizes the current estimated costs of the three remedial alternatives re-evaluated here. The table also identifies the degree of uncertainty associated with each remedy cost estimate.		
Remedial Option	Estimated Cost (in 2009 dollars)	Cost Uncertainty
Dredging Remedy	\$957 million	Low to Moderate
2007 ROD Amendment Remedy	\$701 million	Low to Moderate
Capping Remedy	\$484 million	Moderate to High

Dkt. 147-2 at 6 [CAM at EPAAR185232].

10. The 2010 ESD found that capping was equally protective, and \$217 million less expensive, than the Optimized Remedy allegedly reevaluated in the 2010 ESD. Dkt. 147-2 at 5-6 [2010 CAM at EPAAR185231-32]. The 2010 ESD also found the capping remedy “clearly would be less costly than the [Optimized Remedy] in the short-term.” *Id.* at 7 [2010 CAM at EPAAR185233]. The capping remedy was once again set aside because “the long-term needs for cap maintenance, cap enhancement, and potential cap removal cannot be predicted with certainty at this time.” *Id.* at 6 [2010 CAM at EPAAR185232].

11. The dredging remedy is more complicated than the capping remedy, and contains more elements, each of which has its own uncertainties and cost contingency. Attachment 1 at 66:24-70:7.

12. The omission of the contingency “across the board” left more dollars out of the dredging cost estimate than from the other remedial alternatives, skewing any cost-effectiveness analysis that could have been attempted. Attachment 1 at 33:20-34:13.

13. The chart in the *Sediment Technologies Memorandum for the Lower Fox River and Green Bay, Wisconsin* (Dec. 2002) (Appendix B to the *Lower Fox River and Green Bay Remedial Investigation and Feasibility Study* (Dec. 2002)) that set forth the projects to which the dredging remedy was compared is the most comprehensive source of information on the unit costs. There were only two projects that had unit costs near the unit cost of \$44/ cubic yard, both of which were far simpler than the proposed project for the Lower Fox River. Dkt. 439-1 at 95 [WDNR060001887].

14. **Attachment 2** is a true and correct copy of the *OU1 Design Supplement: Lower Fox River Operable Unit 1* (Nov. 2007) (“OU1 Design Supplement”), in the Administrative Record at EPAAR173515-735 (*see* Dkt. 474-2 at 52), which was submitted to Plaintiffs by GW Partners LLC.¹ In the OU1 Design Supplement, the following assumptions were made when estimating the O&M capping costs for the OU1 Optimized Remedy: (1) that cap monitoring would occur in years 2, 7, 12, 17, and 25 and then every 10 years ending at year 95; and, (2) that 10% (20% for a high cost-estimate), 5% (10% for a high cost-estimate), 5%, and 2.5% cap replacement would be required in years 3, 8, 13, and 18 respectively. Applying a three percent (3%) discount rate to arrive at a present net worth, the O&M for the OU1 Optimized Remedy was estimated to cost between \$3.4 million to \$5.9 million. Attachment 2 at 51 [EPAAR173578].

¹ GW Partners LLC was formed by WTM 1 Company and P.H. Glatfelter, the performing parties for the OU1 remedy.

I declare under the penalty of perjury under the laws of the United States that the foregoing is true and correct, and that this declaration was executed on November 14, 2012, at New York, New York.

By: s/ Philip C. Hunsucker
Philip C. Hunsucker